Migrating from Eclipse 3.X to Eclipse 4.X - The iAware Story

Andy Gifford
@ajgifford
Lead Architect - iAware Development - Cerner
Cerner

- Founded in 1979
- Solutions licensed in over 10,000 facilities
- 12,000 employees worldwide
- 2800 in development roles
  - 1000+ in IP organization
iAware Development Team

- Development team formed in 2007
- Delivered first solution in 6 months
  - Eclipse RCP application
- Critical Care users complained of loss of contextual awareness
- CareAware Critical Care Dashboard developed to bridge the contextual awareness gap
  - Provides Clinicians with situational awareness
  - Facilitates rapid review and timely clinical decision making
Software Development Platform

- Application Framework
  - Manages startup and initialization
  - Solutions define layout (navigation bar and perspectives)
- Platform Framework
  - Active Application
  - Context
  - Navigation
  - Gadget Connection Point
- Gadget Framework
  - Wraps Eclipse views
  - Common operations and UI elements
Application Types

- Dashboard
  - Large form factor displays
  - Always-on, single sign-on
  - No Personalization/Customization
- Personalized
  - Tailored toward individual users
  - User can customize perspectives
  - Preferences
Critical Care Personalized
iAware Development Team Mission

- Reusable application platform built on top of the Eclipse Rich Client Platform to provide the ability to create targeted healthcare workflow applications.

- Take on responsibility to update Eclipse versions for development teams that use the platform.
4.X Uplift

- Development started with 3.3
- Began in late 2011 with 4.1.1
- Maintain passivity
- Feasibility Study
  - 50+ items to address
- Incorporate New Features
  - Application Model
  - Custom Renderers
  - Injection and Behavioral Annotations
Feasibility - View Part Menus

- All Views Have Menus
- Eclipse Bug 319621
- Modified Workbench SWT Renderer to remove menu
Feasibility - Perspective Saving

- Couldn’t save perspectives
- Number of Eclipse related bugs
- Serialized perspective layouts ourselves
- Removed with 4.2 and use perspective XML
Feasibility - Perspective Closed

- Perspective closed when all parts closed
- Eclipse Bug 356252
- Added Cleanup add-on with patch
Feasibility - Menus

- **Menu Ordering**
  - Two plug-ins contributing menu
  - Both used After:File
  - Switched reference
  - Highlights passivity concerns

- **Dynamic Menus - only one element**
  - Using ContributionItem
  - Should have been using CompoundContributionItem
  - Logged bug 354190
Feasibility - Icons

- `FileNotFoundException`  
- Icon missing after view is moved  
- Icon path was incorrect - slash direction wrong
Feasibility - Detached Views

- Prevent Detached Views
- Used IWorkbenchPreferenceConstants.ENABLE_DETACHED_VIEWS in 3.x
- Custom implementation of DnDAddon to prevent detached views
- Logged Bug 357289
Feasibility - Jobs

- Jobs failing
- Startup sequence had changed
- Threads in job pool didn’t contain correct subject
- Updated existing jobs to get subject in constructor
  - Use Subject.doAs
- Create extension of Job to do that
4.X Features - Application Model

- Static and Dynamic
- Static
  - Commands/Handlers
  - Add-ons
  - Custom Renderer Factory
- Dynamic
  - Parts
  - Perspectives
4.X Features - Application Model - Addons

- CommandServiceAddon
- ContextServiceAddon
- BindingServiceAddon
- CommandProcessingAddon
- ContextProcessingAddon
- BindingProcessingAddon
- Customized version of CleanupAddon - keep perspectives open when all parts have been closed
- Customized version of DnDAddon - disables detached views and forces the drop target to be a perspective
- Customized version of MinMaxAddon - removed the minimize button from views
4.X Features - Application Model
4.X Features - Custom Renderers

- Custom UI surrounding Perspective Area
- Provide Renderer to replace `IWorkbenchWindowConfigurer#createPageComposite(Composite)`
- Remove the QuickAccess search field
4.X Features - Custom Renderers
4.X Features - Injection & Behavioral Annotations

- Stop using IViewPart
- Lifecycle Handler
  - @PostContextCreate
  - @ProcessAdditions
- @Execute and @CanExecute for gadget toolbars
- Don’t use @Persist
What’s Next

- 4.3 and 4.4 evaluation and adoption
- Menu items via application model
- Re-evaluate workarounds
- P2 - Features and Products
Conclusion

- Great learning experience
- Added value to our development platform
- More collaboration/participation
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Features a blog post of today’s talk
Footnotes

- [https://bugs.eclipse.org/bugs/show_bug.cgi?id=319621](https://bugs.eclipse.org/bugs/show_bug.cgi?id=319621)
- [https://bugs.eclipse.org/bugs/show_bug.cgi?id=356252](https://bugs.eclipse.org/bugs/show_bug.cgi?id=356252)
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